

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the application of:

Confirmation No.: 1470

Chyi-Cheng CHEN *et al.*

Group Art Unit: 1611

Application Serial No.: 09/726,880

Examiner: CHANNAVAJJALA, L.S.

Filed: November 30, 2000

Attorney Docket No.: 2921268-001000

For: A VITAMIN POWDER COMPOSITION AND METHOD OF MAKING

**APPELLANT'S REPLY BRIEF**

Mail Stop APPEAL BRIEF – PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

This is a reply to new arguments raised in the Examiner's Answer mailed March 12, 2012 ("Examiner's Answer").

**I.     Status of Claims**

Claims 3-14, 17, 28-31, and 33-36 are currently pending in this application. Claims 3-14, 17, 28-31, and 33-36 stand rejected under 35 U.S.C. § 103(a) by the June 22, 2011 Office Action and are under appeal.

**II. Grounds of Rejection to be Reviewed on Appeal**

- (1) Whether claims 3-14, 17, 28-31, and 33-36 are properly rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over either US 5,968,251 to Auweter ("Auweter") in view of US 5,952,395 to Lorant *et al.* ("Lorant") or Auweter and EP 937412 ("Stein") in view of Lorant.
- (2) Whether claim 36 is properly rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over either Auweter in view of Lorant and US 2,756,177 to Cannalonga ("Cannalonga") or Auweter and Stein in view of Lorant and Cannalonga.

### **III. Arguments**

Claims 3-14, 17, 28-31, and 33-36 stand rejected under 35 U.S.C. § 103(a) over either Auweter in view of Lorant or Auweter and Stein in view of Lorant. Claim 36 stand rejected under 35 U.S.C. § 103(a) over Auweter in view of Lorant and Cannalunga or Auweter and Stein in view of Lorant and Cannalunga.

Appellants disagree for at least the reasons that follow as well as the reasons set forth in the Appeal Brief submitted on December 16, 2011, which is herein incorporated by reference in its entirety.

#### **A. Claim 3-14, 17, 28-31, and 33-36**

##### **1. One of Ordinary Skill in the Art Would Not Turn to the Teachings of Auweter or Stein as They Do Not Suggest Formulations Having the Claimed Droplet Size Which Have Optical Clarity and Which Appear Transparent and/or Translucent**

In maintain the rejections, the Examiner asserts that the instant claims do not recite the argued feature "optical clarity," instead, instant claims are directed to "dry powder" compositions and not any optically clear solutions. Also, the Examiner asserts that appellants have not shown that colored composition can only result in turbidity and not an optically clear composition. The Examiner asserts that the argument is based on the premise that colored composition should always result in turbidity, when in fact most colored beverages are not turbid and instead clear. The Examiner asserts that the argument that Auweter and Stein are directed to produce turbid colored compositions is not persuasive, and Appellants have not shown how the orange hue imparted by the clear yellow dispersions of Auweter is inferior to the argued "optically clear" composition obtained with the claimed powder particles. Appellants respectfully disagree.

Although the instant claims do not recite the argued feature "optical clarity," as discussed in the Appeal Brief and in the Declaration of Dr. Bruno Leuenberger, claimed particles having an average diameter of about 80 to about 120 nm are "small enough to allow sufficient transmission of light such that a clear liquid in which a powder composition having such particles is added appears as transparent and/or translucent solution which is essentially free from turbidity." *See* Declaration, ¶ 22. Thus, while the claims do not recite "optical clarity," it is an inherent property of the claimed powder composition.

Also, while Auweter Example 1 does yield a clear yellow dispersion in water, as discussed in the Appeal Brief and the Declaration of Dr. Bruno Leuenberger, while the goal

of the instant claimed powder composition is to achieve optical clarity, it is also to achieve a transparent and/or translucent solution upon addition to a clear liquid. See Specification, page 7, ll. 5-6, and Declaration, ¶ 22.

As discussed in the Appeal Brief, both Auweter and Stein are directed to preparing better coloring compositions, and the examples of both references disclose yellow, red, orange, or cherry-red colorations, while the goal of the instant claimed composition is directed to transparent and/or translucent solution upon addition to clear liquid. Thus, one of ordinary skill in the art would not be motivated to look at technologies directed to better coloring effects when inventing compositions directed to optical clarity and a transparent and/or translucent solution upon addition to a clear liquid.

Auweter teaches a diameter of typically 200 nm, and Stein discloses particle sizes of 196nm to 240 nm. As the Stein Declaration asserts, "at the time, at best we could produce a particle size of about 196 nm," and "one of skill in the art at the time of the invention familiar with the disclosures of Stein could not have produced particles of the presently claimed size." See Declaration, ¶¶ 7-8. Thus, whereas Auweter and Stein's preparations would most likely produce turbid and colored solutions (which is consistent with their goal of producing better coloring compositions), the claimed powder composition having an average diameter of about 80 to about 120 nm achieves optical clarity and a transparent and/or translucent solution upon addition to a clear liquid.

Thus, as discussed in the Appeal Brief, one of ordinary skill in the art would not be motivated to turn to the teachings of Auweter and Stein as they do not suggest formulations having the claimed droplet size having an average diameter of about 80 to about 120 nm, which have optical clarity and which appear transparent and/or translucent in an otherwise clear solution.

## **2. Physiochemical Properties of Beta-carotene and Instant Claimed fat-soluble Vitamins Differ**

In maintaining the rejections, the Examiner asserts that Appellants argument that the physiochemical properties of beta-carotene and instant claimed fat-soluble vitamins differ in significant ways that affect the goals in formulation, are not persuasive, because instant claims are not limited to any specific fat soluble vitamin. Appellants respectfully traverse.

The fact that carotenes and instant claimed fat-soluble vitamins have different physiochemical properties was used to further demonstrate that they differ in ways that one of ordinary skill in the art would not turn to the teachings of Auweter and Stein. The use of  $\beta$ -carotene, which is an insoluble solid compound and is indicated in the Merck Index as a

"yellow coloring agent for foods," in Auweter would be consistent with its goal of achieving a better coloring composition, but would not be able to achieve the claimed powder composition which achieves optical clarity and a transparent and/or translucent solution upon addition to a clear liquid. Also, as discussed in the Appeal brief, the dispersion disclosed in Auweter is a solid in liquid dispersion stabilized with colloids, and is markedly different from the claimed composition that provides solid droplets of a fat-soluble vitamin dispersed in a matrix consisting of an emulsion-forming composition.

**3. One of Ordinary Skill in the Art Would Not Have Combined Auweter and Stein With the Teachings of Lorant**

In maintaining his rejections, The Examiner asserts that even though Lorant's teachings are not related to food coloring composition, Lorant teaches preparation of ultrafine particles of oil-in-water emulsions wherein the mean size of the particles that form the fatty phase ranges from 70nm to 1000nm or more preferably 70 to 300nm, and that the smaller the particle size, the lesser the surface tension and the higher the stability. Thus, even though Lorant does not teach edible compositions, one of ordinary skill in the art would have practiced known techniques of preparing oil-in-water emulsions, of Lorant, in the teachings of Auweter or Stein to arrive at the claimed particle sizes of the oily phase.

Appellants respectfully submit that the Examiner is mistaken about the teachings of Lorant. Lorant does mention that the smaller the size of the oil droplets, the more the surface tension decreases and the more the stability of the emulsion increases, however, Lorant also teaches that ultrafine specific oil in water emulsions in which the mean size of the globules forming in the fatty phase is between 50 and 1000 nm is still fragile and still poses a number of stability problems. See col. 1, ll. 26-49, col. 2, ll. 1-3. To overcome these disadvantages, Lorant is directed to a new class of thickening or gelling polymers which make it possible to produce emulsions obtained by phase inversion, which are stable. See col. 2, ll. 36-38. The specific polymer is a cross-linked poly(2-acrylamido-2-methylpropanesulphonic acid) neutralized to at least 90%, and thus, Lorant teaches the use of a specific cross-linked polymer for stabilizing the emulsions, not decreasing the size of the particles to stabilize emulsions. See col. 3, ll. 10-11. Thus, if one of ordinary skill in the art would have wanted to stabilize the emulsions, one would not have incorporated the size of particles of Lorant, because as Lorant teaches, the smaller particle size still led of fragile and unstable emulsions. One would have instead included the specific cross-linked polymer taught by Lorant instead, and would not have left out the taught cross-linked polymer.

Also, as asserted in the Appeal Brief, one of ordinary skill in the art had no motivation

to combine the teachings of Lorant with Auweter and Stein as one would not look to a non-edible gelled ultrafine oil-in-water emulsion which improves the stability of emulsions in cosmetic or dermatological compositions, when inventing powders directed to better food coloring effects. Also, the goals of Lorant and Auweter are to provide a colored solution for food coloring, and thus, one would not look to smaller particle sizes which would produce optical clarity and appear transparent and/or translucent in solution upon addition to a clear liquid.

**4. Auweter and Stein Processes Do Not Provide Any Guidance As to How to Make the Presently Claimed Composition**

In maintaining the rejections, the Examiner asserts that the argument that processes of Auweter and Stein do not provide any guidance as to how to make the instant claimed compositions are not persuasive because the instant claims are directed to a composition and not a method or process of producing the composition.

Appellants respectfully submit that the argument that the processes of Auweter and Stein were different from the process used to make the claimed powder compositions, is to further evidence that the processes of Stein and Auweter would produce carotenoid particle sizes in a comparable range of about 200 nm, which is much higher than the claimed range of about 80 to about 120 nm. The argument also demonstrates that the processes of Stein and Auweter does not provide any guidance as to how the presently claimed composition can be produced.

Thus, Auweter and Stein provide no motivation or guidance for one of ordinary skill in the art to achieve the claimed powder composition.

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Thus, independent claims 36 and 29 are not rendered obvious. Claims 3-14, 17, and 28, 30-36 variously depend from claims 36 and 29, and thus, would also not have been rendered obvious.

**B. Claim 36**

In maintaining the rejections, the Examiner asserts that Cannolonga also teaches vitamin powder preparations comprising emulsifying fat soluble vitamins, and also maintain the moisture content of the compositions, and thus, one of ordinary skill in the art would be motivated to reduce the moisture content in the instantly claimed composition.

As set forth above and in the Appeal Brief, it is not obvious for one of ordinary skill in the art to combine the teachings of Auweter, Stein, and Lorant to obtain the instant claimed

powder composition, and Cannalonga does not overcome these deficiencies.

**C. Conclusion**

Appellants respectfully submit that the Examiner has not set forth a proper *prima facie* case of obviousness because no reasoning has been articulated based on rational underpinnings to support the legal conclusion of obviousness. Withdrawal of the rejections are respectfully requested.

Dated: May 9, 2012

Respectfully submitted,

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